

## TEACHERS' RETIREMENT BOARD

### INVESTMENT COMMITTEE

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SUBJECT: U.S. Equity Benchmark Task Force -  
Study of U.S. Equity Indices

ITEM NUMBER: 5

ATTACHMENT(S): 2

ACTION: X

DATE OF MEETING: May 1, 2002

INFORMATION:     

PRESENTER(S): Elleen Okada  
Steven Tong

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#### **Executive Summary**

A mandate for the Investment Branch in year 2001-2002 is to complete an examination of the various benchmarks that are available to track the performance of the broad U.S. equity market. The objective of the review is to either reaffirm the S&P 500 Index and Russell Small Cap Completeness Index (both ex-Tobacco) or select a new benchmark for the CalSTRS' domestic equity asset class. In combination, these two indices approximate, but do not completely match the Russell 3000 Index. This paper is the last in a three-part series examining U.S. equity benchmarks and concludes with a final recommendation.

In this study, staff examined the following benchmarks in depth: Dow Jones U.S. Total Market Index, Russell 3000 Index and S&P 1500 Index. These indices were evaluated in terms of their qualities for performance measurement as well as a passive investment process.

#### **Recommendation**

After a lengthy research, analysis, and comparison, both CalSTRS' investment staff and Pension Consulting Alliance are recommending the following:

1. The Board adopt the Russell 3000 Index (ex-Tobacco) as the benchmark for the CalSTRS' domestic equity portfolio. This benchmark will be used to create performance standards against which CalSTRS' active managers, passive portfolio, as well as the total domestic equity portfolio can be evaluated. The change from the old to new benchmark should occur on July 1, 2002.
2. The Board direct staff to examine the structure of the passive domestic portfolio. Staff will either (i) reaffirm the existing S&P 500 Index/Russell Small Cap Completeness Index (both ex-Tobacco) structure or (ii) adopt an alternative structure that better matches

the Russell 3000 ex-Tobacco Index. This study and a potential implementation plan regarding timing and duration of a transition will be presented to the Board at the June Investment Committee meeting in closed session.

Date prepared: April 12, 2002

By:

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## **Background**

In 1996, the Board considered a variety of benchmarks for the domestic equity asset class. After research, analysis, and comparison, the Board adopted the Russell 3000 Index as its benchmark for the domestic equity portfolio. In May 2001, the Board approved refinements for the benchmark and adopted the S&P 500 Index and Russell Small Cap Completeness Index (both ex-Tobacco) as the structure policy modules for the U.S. equity asset class. As mentioned earlier, the combination of these two indices closely resemble, but do not match perfectly, the Russell 3000 Index (ex-Tobacco).

In the year 2001-2002, the Board directed staff to conduct a study to determine the most appropriate benchmark for CalSTRS' domestic equity asset class. Over the past several months, staff has conducted a review of the various broad U.S. equity benchmarks. Staff met with and/or spoke to several major index providers, investment advisors, brokers and consultants regarding evaluation criteria and indices to consider as a benchmark for the domestic equity asset class. Exhibit 1 shows a list of contributing firms.

### **Exhibit 1: List of Contributing Firms**

<b>Firm Name</b>
Dow Jones Indexes
Frank Russell Company
Salomon Smith Barney
Standard & Poor's
Barclays Global Investors
State Street Global Advisors
Goldman, Sachs & Company
Prudential Securities Incorporated
Pension Consulting Alliance
Richards & Tierney, Inc.

During this period, staff also presented the Board with information concerning benchmark characteristics including asset class representativeness, turnover, and performance efficiency. In addition, staff made a comparison of the indices' construction rules, objectiveness, investability, and transparency.

## **Summary of Equity Benchmark Findings**

Staff used the following criteria which is listed in order of importance in evaluating the Dow Jones U.S. Total Market Index, Russell 3000 Index, and S&P 1500 Index:

1. Breadth and Market Coverage
2. Economic Sector Diversification
3. Risk and Return Comparison
4. Accurate and Complete Data
5. Acceptance by Investors
6. Turnover
7. Size and Style Modules

The key results of the study are as follows:

### Breadth and Market Coverage

Breadth and market coverage are indicators of how much the investment opportunity set is covered by the benchmark. These factors are important from the standpoint of investors selecting a benchmark that is representative of the U.S. equity market. It is in the interest of a large number of investors to have the broadest exposure to U.S. equities possible. However, from a practical standpoint, the risk and return differences between the different benchmarks are relatively small since each of the indices is dominated by large capitalization securities.

Despite their performance similarities, there are several differentiating factors among the benchmark alternatives. The most obvious difference in construction is the number of constituents designated for each index. Through its construction methodology, the S&P 1500 will always have 1,500 constituents. The Russell 3000 Index, however, only rebalances once a year and begins at the end of June with 3,000 companies. Over time companies fall out of the Russell 3000 for a variety of reasons (merger, bankruptcy, etc.). Still, over time, the S&P 1500 Index contains half the number of companies than the Russell 3000 Index. As a result, the Russell 3000 has better breadth in terms of number of holdings.

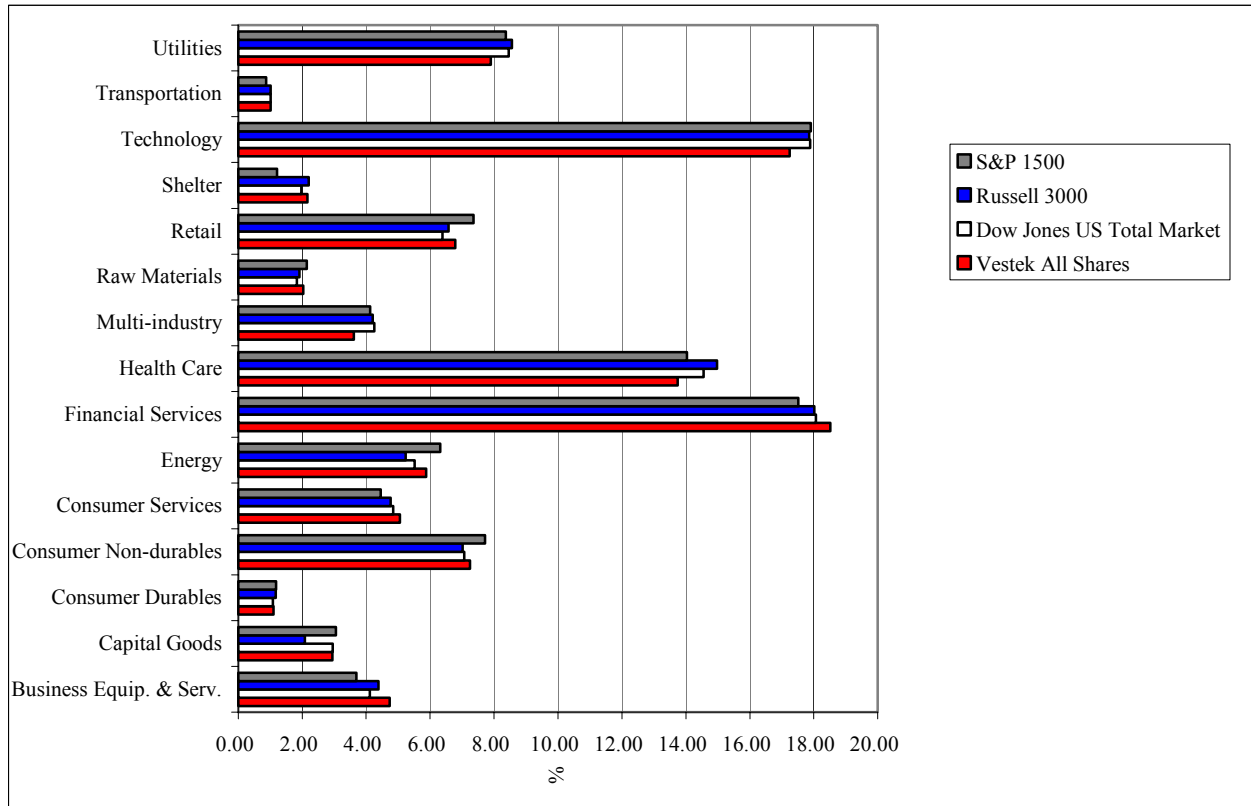
In terms of market capitalization and market coverage, the Dow Jones U.S. Total Market Index, Russell 3000 Index and S&P 1500 Index are similar. All three indices provide broad market exposure with coverage of over 90% of the relevant investment opportunity set. These high coverage levels, combined with the widely varying number of holdings in each benchmark, indicates that there are hundreds of companies in each index that account for only a small proportion of the benchmarks' market values.

One feature unique to Dow Jones and Russell's index construction methodology is they adjust for both cross-ownership and large private holdings. The goal is to identify the so-called "investable portion" of the U.S. equity market. Additionally, the Dow Jones U.S. Total Market Index and Russell 3000 Index contain only those securities domiciled in the United States. In contrast, the S&P 1500 Index contains eleven companies incorporated outside the U.S., representing 3±% of the total market capitalization of the index. As a result, the S&P 1500 is not a pure U.S.-only broad equity market index. In staff's view, the Dow Jones U.S. Total Market Index and Russell 3000 Index are more likely better indices in terms of how well they represent the investable portion of the U.S. equity market.

#### Economic Sector Diversification

The Dow Jones U.S. Total Market Index, Russell 3000 Index, and S&P 1500 Index have coverage in all economic segments of the market (Exhibit 2). The economic sector composition of the Dow Jones U.S. Total Market Index and Russell 3000 Index are closer to the Vestek All Shares Index, a proxy for the entire U.S. equity market. The sector weights may diverge slightly due to constituent selection and share inclusion methodologies. These variations in exposure could affect the performance of each index.

## Exhibit 2: Comparison of Economic Sector Weightings



Source: Vestek Systems, Inc.

As of December 31, 2001

### Risk and Return Comparison

The Dow Jones U.S. Total Market Index, Russell 3000 Index and S&P 1500 Index have similar risk characteristics based on a comparison of the standard deviation over the past five calendar years. The standard deviation of the S&P 1500 Index was 17.85%, which is 0.16% and 0.64% less than the Russell 3000 Index and Dow Jones U.S. Total Market Index, respectively. This difference is not considered material.

The returns for the indices are highly correlated. At a five-year correlation of 99.3%+, there is little difference between the three indices. Past performances of the indices are not indicative of future results, which may vary.

### Accurate and Complete Data

Availability of information is also important. The Dow Jones U.S. Total Market Index, Russell 3000 Index and S&P 1500 Index returns and index levels are calculated real-time and shown on quote and information systems (e.g., Bloomberg). Additionally, a full list of constituents with index weights are available through the index providers' websites and are updated daily.

### Acceptance by Investors

The three indices have varied degrees of acceptance as an U.S. equity benchmark for institutional investors. The Russell 3000 Index has wide acceptance as the standard for measuring the broad U.S. equity market performance. Although the largest amount of domestic equity is indexed to the S&P 500 Index, the index is no longer considered a broad market benchmark. Dow Jones reports there are virtually no indexed assets or benchmark mandates to the Dow Jones U.S. Total Market Index (launched in February 2000).

<b>Total Dollars Indexed to Standard &amp; Poor's Indices (\$ million)</b>	
S&P 500	902,780
S&P MidCap 400	31,850
S&P Small Cap 600	12,114
S&P 1500	1,500
S&P 500 Growth and Value	36,250
S&P MidCap 400 Growth and Value	21
S&P SmallCap 600 Growth and Value	12
Total	984,527

Source: Standard & Poor's

<b>Total Dollars Indexed to Russell Indices (\$ million)</b>	
Russell 3000	64,111
Russell 3000 Growth	0
Russell 3000 Value	0
Russell 1000	30,170
Russell 1000 Growth	9,126
Russell 1000 Value	30,684
Russell 2000	19,702
Russell 2000 Value	2,763
Russell 2000 Growth	1,357
Russell 2500	147
Russell 2500 Growth	0
Russell 2500 Value	0
Russell MidCap	25



Russell MidCap Growth	66
Russell MidCap Value	225
Russell Top 200	843
Russell Top 200 Growth	237
Russell Top 200 Value	917
Russell Small Cap Completeness	5,627
Total	158,151

Source: Frank Russell

### Turnover

There is limited data available on turnover (i.e., the purchasing and selling of securities) across the various indices. Since the Dow Jones U.S. Total Market Index was launched in February 2000, there is limited information available on turnover for this index. For the twelve-month period ending June 30, 2001, the turnover for the Russell 3000 Index was similar to the S&P 1500 Index, at over 6%. A distinguishing factor between these benchmarks is *when* the turnover occurs. Turnover in the S&P 1500 occurs relatively frequently, as rebalancing occurs on an as needed basis. In contrast, the Russell 3000 is rebalanced once per year on *one day*, making turnover during that short time frame highly significant. In the case of both indices, however, turnover tends to be lower with large companies because they are more established and less likely than smaller companies to be acquired, consolidated or merged.

Each of the benchmark providers utilize different approaches for adding and deleting stocks to/from their benchmarks. Dow Jones and Frank Russell utilize “rules-based” systems for including stocks in an objective manner. Their rules focus on company size, appropriate capitalization representation, and liquidity. All benchmark construction rules are published and known by the industry. In contrast, the S&P 1500 Index stock selection process is not strictly rule-based. Standard and Poor’s add and delete stocks as their views on stocks change. The Standard and Poors’ stock selection process is based upon size, profitability, liquidity, and industry representation. In addition, Standard and Poors’ typically make adjustments in a confidential manner. As a result, Standard and Poors’ approach to index construction is marginally less transparent than the rule-based methodology used by Dow Jones and Frank Russell.

### Size and Style Modules

Benchmark modularization is also important. To manage investment risk, CalSTRS domestic equity assets are diversified across managers and styles of management. The three broad market benchmarks under consideration are segmented into modules that track capitalization segments and investment styles within the U.S equity market. CalSTRS can use these subgroups as benchmarks for active investing or as a basis for a passive portfolio. All three benchmarks

contain a large cap and small cap component, which can be further sub-divided into growth and value segments. However, because the different index vendors utilize different methodologies to define “size” and “style”, there are significant differences between the index modules published by the three vendors.

### **Benchmark Recommendation**

After analyzing the three indices, staff concludes that the Russell 3000 Index (ex-Tobacco) is the most appropriate benchmark for creating proper performance standards against which CalSTRS’ active managers as well as the total domestic equity portfolio can be evaluated. This conclusion was based on a review of the characteristics of the indices according to the criteria outlined in earlier presentations and summarized in this report. While all three indices are very close and acceptable benchmarks for a pension fund, in staff’s view, the Russell 3000 Index is marginally better than the Dow Jones U.S. Total Market Index and S&P 1500 Index in several important areas:

- The Russell 3000 Index has the highest percentage coverage of the investable U.S. equity market.
- The Russell 3000 Index has better breadth in terms of the number of holdings.
- The Russell 3000 Index and Dow Jones U.S. Total Market Index are float adjusted to reflect the relevant opportunity set.
- The Russell 3000 Index is more representative of the U.S. economic sector weights than the S&P 1500 Index.
- The Russell 3000 Index and Dow Jones U.S. Total Market Index have an objective selection process for determining the composition of the index.
- The Russell 3000 Index selection rules make its process consistent over time.
- The Russell 3000 Index has a very strong and growing share of the benchmark market.

### **Passive Investment Structure**

Assuming the Investment Committee adopts the Russell 3000 Index (ex-Tobacco), staff recommends reexamining the existing structure of the passive domestic equity portfolio to determine if the risk and return characteristics closely match the benchmark for the domestic equity asset class. The objective of the analysis is to either reaffirm the current modular structure or recommend a new structure policy. This choice of structure can have significant implications for investment performance for the passively managed portfolio.

RESOLUTION OF THE  
TEACHERS' RETIREMENT BOARD  
INVESTMENT COMMITTEE

SUBJECT: U.S. Equity Benchmark Change

Resolution No. \_\_\_\_\_

WHEREAS, the Investment Committee of the California State Teachers' Retirement Board is responsible for recommendation to the Board, investment policy and overall investment strategy for the management of the Teachers' Retirement Fund, a multi-billion dollar public pension plan; and

WHEREAS, the Investment Committee is charged with designating the Fund's benchmark for each asset class; and

WHEREAS, the Investment Committee has received and reviewed written recommendation for the benchmark change and has heard oral presentations from Staff, and

WHEREAS, the Consultant and Staff have recommended the adoption of the Russell 3000 Index (ex-Tobacco) as the Fund's U.S. equity benchmark effective July 1, 2002; Therefore, be it

RESOLVED, that the Investment Committee of California State Teachers' Retirement Board adopts the Russell 3000 Index (ex-Tobacco) as the benchmark for U.S equity asset class.

Adopted by:  
**Investment Committee**  
on May 1, 2002

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Jack Ehnes  
Chief Executive Officer